Assessment of Leading Chronic Health Indicators in Tippecanoe County

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Executive Summary

Chronic diseases impart a substantial economic and social burden in the United States. To assess this burden at the local level, the collection of baseline chronic disease data is warranted. Chronic disease indicators such as diabetes, hypertension, obesity, and high cholesterol were of particular interest. Additional health indicators, such as exercise patterns, nutrition, and access to healthcare were also assessed.

The five leading causes of death in Indiana are heart disease, stroke, cancer, chronic obstructive pulmonary disease (COPD), and diabetes. Tippecanoe County has a similar mortality statistic. While family history plays a role in disease, a healthy lifestyle is the foundation of longevity. Some degree of risk modification is possible with all of these diseases.

The data from this report revealed the following health indicators in the county:

High Cholesterol	23.4%	Adult Overweight	34%
Hypertension	26.1%	Adult Obese	27%
Diabetes	8.8%	Children at Risk (Overweight)	25%
Smoking	19.4%	Childhood Overweight (Obese)	10%
Chronic Heart Disease	6.6%	Adults Lacking Health Insurance	13.1%
Cancers (Combined)	7.3%		

These indicators are discussed in more detail in each of their respective sections. Where it is possible, the county prevalence is compared to the state and the nation. This information will guide us in prevention and intervention programs for the general population.

This health assessment was made possible through a partnership between North Central Health Services and the Tippecanoe County Health Department. Several individuals and organizations were instrumental in the completion of this health assessment including :

Emily Becker, Stephen Simpson, and Elizabeth Emery, MPH interns
Dr. Michael Bohlin, Health Officer, Tippecanoe County Health Department
Ron Cripe, Administrator, Tippecanoe County Health Department
Dr. Roseann Lyle, Department of Health & Kinesiology, Purdue University and *The Coalition For Living Well After 50*
Dr. Wendell Riggs, retired Health Officer, Tippecanoe County Health Department.
Dr. John Stahura, Rachel Kraus, and Greg Gibson, Social Research Institute at Purdue University

PREFACE

Introduction

The Tippecanoe County Health Department (TCHD) and North Central Health Services (NCHS) have partnered together to collect and analyze data in order to create a public health database. This is the first report of its kind for Tippecanoe County residents. This effort has focused on chronic diseases, physical activity, health, and barriers to health. Chronic disease markers are strong indicators of the general health of a population.

Chronic diseases impart a considerable burden on the American population, significantly contributing to morbidity, mortality, and disability. Approximately 90 million people suffer from a chronic illness, with 7 out of 10 deaths each year attributed to a chronic condition (CDC, 2005). Yet, these conditions are often preventable with lifestyle changes and screening programs for early detection.

This report contains information on the adult population age 25 years and older and K-12 children. These results are available to our public and local service agencies, both profit and non-profit. This report is designed to show the big picture, that is, the strengths and weaknesses of the health in our community. By establishing a benchmark of where we stand today, we will be able to apply our resources towards implementing programs to help those who need it most. In the future we will be able to evaluate programs targeted to these indicators as we follow these numbers over time.

The U.S. Department of Health and Human Services has designed a strategic plan, ***Healthy People 2010,*** to improve the health of all people in the United States. It is grounded in science, built through public consensus, and designed to measure progress. The overarching goals of ***Healthy People 2010*** are:

- To increase quality and years of healthy life
- To eliminate health disparities

Where possible, Healthy People 2010 is used as a national benchmark for comparison between the local data that has been collected and where possible, the state comparison is also shown. One of the purposes of this report is to compare Tippecanoe County to the state and nation.

About This Assessment

The data for this community assessment came from several different sources:

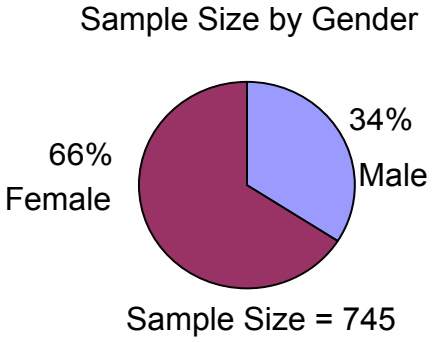
- Telephone surveys conducted through the Purdue University Social Research Institute (SRI) Computer Assisted Telephone Interviewing (CATI) lab was used for the chronic health indicators of adults in 2003 and 2005.
- The weight data for school age children was collected by the TCHD in 2004-2006.

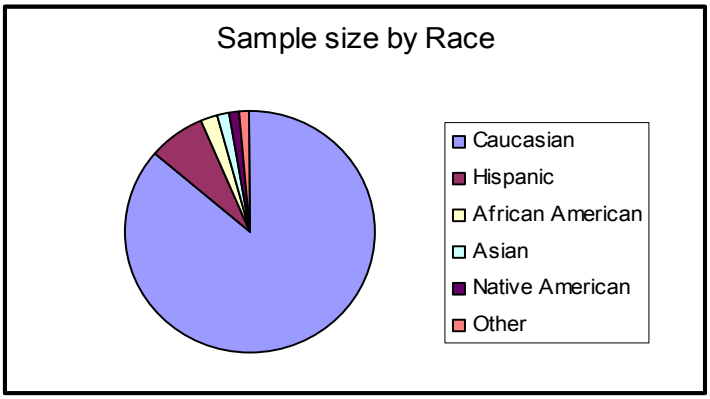
The telephone surveys were conducted at separate times and did not include identical questions; however, a common set of standard validated questions from the national Behavior Risk Factor Surveillance System (BRFSS) were used in both. In 2003 an older population (50+) was surveyed and in 2005 a younger adult population (25-50) was surveyed. Where possible the data was merged together to create an overall picture of the population of adults age 25 and older in Tippecanoe County. In other instances the data is separated by age group because the questions asked were different, though on related topics. The terms 'younger adults' and 'older adults' are used throughout this assessment to refer to individuals 25-50 years of age and 50+ years of age, respectively.

Further methodology for this assessment is found in the Appendix.

Sample Characteristics

	25-50	50+	Total
Male	148	106	254
Female	288	203	491
Total	436	309	745





Demographics

Tippecanoe County

- Tippecanoe County is located in northwestern Indiana and has a 2004 estimated population of 152,042 (IBRC, 2005). It has approximately 500 square miles of land area and a population density of 304.2 per square mile (IBRC, 2005).
- Major cities include Lafayette and West Lafayette, the home of Purdue University.
- In the year 2000, over 55,000 established households were recognized (IBRC, 2005). The average household has 2.42 persons while the average family size is 3.01 persons (IBRC, 2005). Median household income in year 2002 was $38,771. Unemployment is approximately 4% (IBRC, 2005).
- Year 2003 data indicated that 90.7% of the population is Caucasian, 5.3% is Asian American, 2.6% is African American, and 0.3% is American Indian or Alaska Native (IBRC, 2005). Hispanic or Latino (of any race) heritage accounts for 5.6% of the population (IBRC, 2005). 98.9% reported only one race (IBRC, 2005).
- 87.8% of adults age 25 and older have at least a high school diploma, with 33.2% holding a minimum of a Bachelor degree (IBRC, 2005).

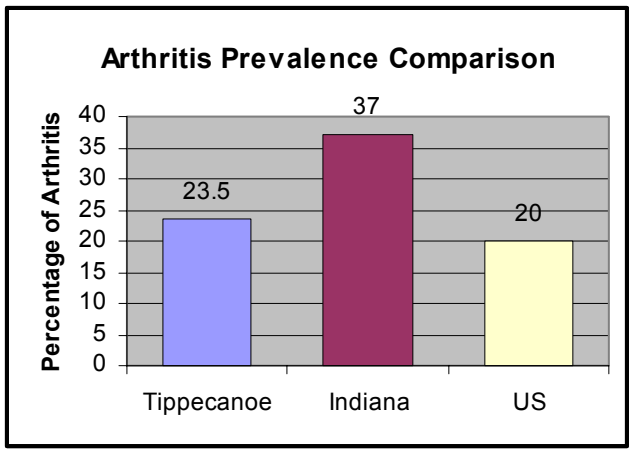
Arthritis & Rheumatism

Nationwide in 2002, 43 million adults reported doctor-diagnosed arthritis, with 23 million more indicating undiagnosed chronic joint symptoms (CDC, 2005b). This chronic disease rarely kills, but many people feel sentenced to a lifetime of disability and limited quality of life.

Indiana was recognized in 2003 as one of 14 states with the highest percentage of adults with arthritis. More than 35% of the Hoosier adult population, or 1,685,000, has doctor diagnosed arthritis. The estimated cost of arthritis and other rheumatic conditions to Indiana was $2,908,000 in 1997. (CDC, Health Care and Aging Branch, 2005)

Commonly thought to only affect older adults, arthritis knows no age limitations. The disease is found in all racial and ethnic groups, and is more common in women than men (CDC, 2005b).

- Arthritis prevalence in Tippecanoe County for all age groups is 23.5%. Prevalence for the state and nation: 37% and 20%, respectively.
- The results of this study are consistent with the observation that arthritis/rheumatism does occur in younger age groups: 11.5% of respondents (25-50 years of age) reported a clinical diagnosis. Among those 50+ years of age, the prevalence was 40%.
- A significant difference was observed in prevalence with gender and age. In women 25-50 years of age the prevalence was 11.5%, whereas in women 50+ years of age it was 47.8%. The prevalence in men 25-50 and 50+ years of age were 11.6% and 27.3%, respectively.



Age was significantly associated with arthritis/rheumatism. The percentage of respondents in each age group diagnosed with this condition increased with age.

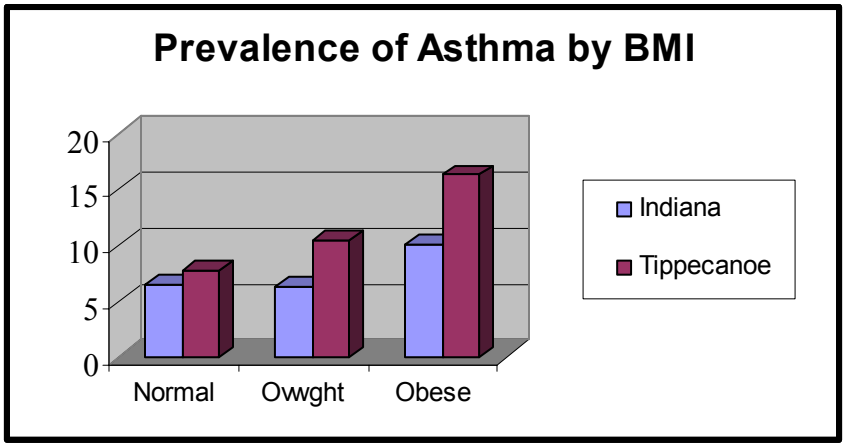
Asthma

Asthma is a chronic respiratory disease that affects millions of Americans. In 2003, 11.9% of U.S. adults and 12% of Indiana adults were afflicted with the disease (CDC, 2003) (CDC, 2004). More women than men have asthma in Indiana, 9.8% versus 5.1%, respectively (Burden of Asthma in Indiana, 2004).

Respondents 25-50 years of age in this study were asked if they have ever suffered from or have been diagnosed with asthma, with 11.7% responding 'Yes'. For adults 50+ years of age, the chronic lung question included asthma and emphysema, with 11% reporting they have been diagnosed with these symptoms.

In Tippecanoe County, among those 25-50 years of age, 12.8% of women and 9.5% of men reported suffering from asthma. Of those that were asthmatic, 43% had experienced an attack within the last year.

Indiana Behavioral Risk Factor Surveillance System (BRFSS) data show a possible association between obesity and asthma (Burden of Asthma, 2004). This corresponds to data from the 25-50 years of age population in Tippecanoe County.



In Tippecanoe County, the younger adults have a higher prevalence of asthma in their equivalent BMI class.

Overweight: 10.5% vs. 6.3%
Obese: 16.3% vs. 10.1%

The lifetime direct medical costs for an average person with asthma is $50,000 (American Lung Association, 2005). The lifetime direct medical costs for a person with moderate to severe asthma that has not been carefully controlled is more than $200,000. (EPA Cost of Illness Handbook Cost in 1999 dollars). Every person with asthma should have an asthma management plan.

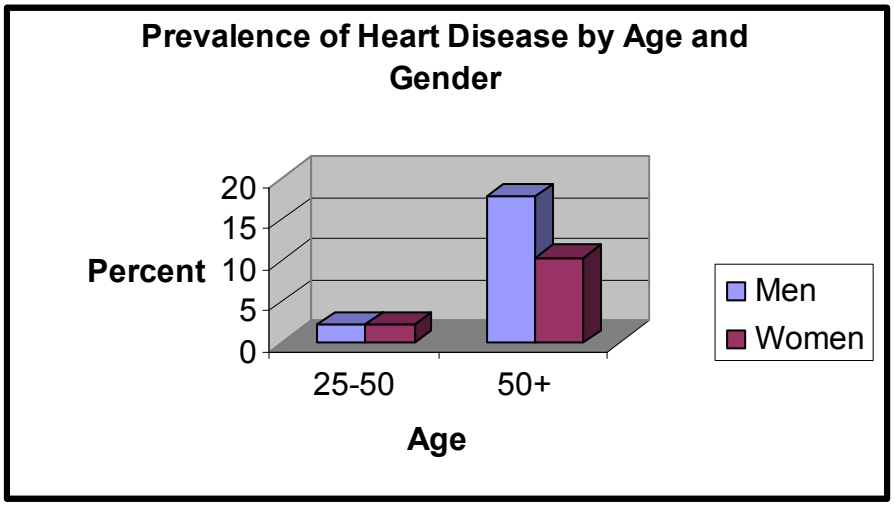
Chronic Heart Disease

Heart disease is the most common cause of death in the United States for all racial and ethnic groups, with approximately 25% of the population living with cardiovascular disease (CDC, 2005c). African Americans are at higher risk for cardiovascular disease, and women account for more than half of the deaths each year due to heart disease. Commonly thought to affect only the older adults, sudden death from cardiovascular disease is becoming increasingly more common among 15-34 year olds (CDC, 2005c).

Heart disease is also the leading cause of death in Indiana, accounting for 28% of all deaths in 2001 (CDC, 2004b). At the county level, heart disease is the leading cause of death in Tippecanoe County and accounts for 34% of the deaths.

Tippecanoe County residents 25-50 and 50+ years of age were asked about their cardiovascular history and any prior diagnosis of congestive heart failure, angina or heart attack.

- A total of 6.6% reported chronic heart disease. This statistic is in sharp contrast to the 25% nation wide prevalence of cardiovascular disease. A large portion of individuals may be undiagnosed in our community.
- The younger population (25-50 years of age) had a prevalence of 2.1% versus the older group (50+ years of age) at 13%.
- Most significant is the difference between gender in the older population. Both younger men and women had the same prevalence at 2.1%. The older men and women were quite different; men had a prevalence of 17.9% whereas in women it was 10.4%.



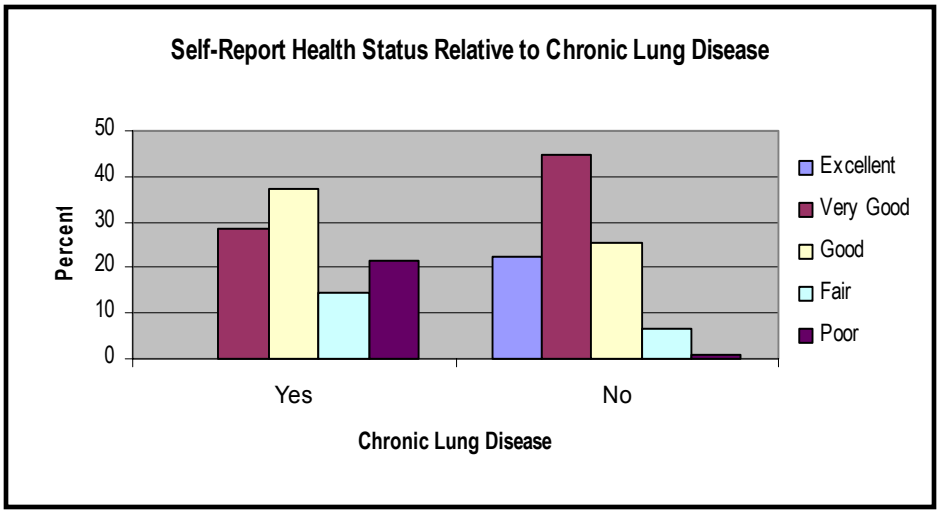
Chronic Lung Disease

Chronic obstructive pulmonary disease (COPD) is estimated to affect up to 30 million U.S. adults according to the National Center for Health Statistics. Just over half, 16 million, have been diagnosed. This chronic disease includes emphysema and chronic bronchitis. Between 80% and 90% of COPD cases are due to tobacco use. Women with COPD had more emergency department visits, hospitalizations, and deaths than men with the disease (CDC, 2003b). COPD costs the U.S. approximately $26 billion per year in direct and indirect medical costs (American Lung Association (2006, June).

Both younger and older adults of Tippecanoe County were asked if they had ever suffered from or been diagnosed with chronic lung disease, including bronchitis, asthma, or emphysema. A significant association was observed between health status and chronic lung disease as shown in the figure below.

- 13.1% of respondents reported chronic lung disease.
- While age, smoking status, and gender were not predictors of chronic lung disease, household smokers and household income were significantly related to lung disease.
- 14.4% of the population aged 25-50 responded 'Yes' to the chronic lung disease question.
- 11.0% of the population aged 50+ responded 'Yes' to the chronic lung disease question.
- A significant relationship was observed between chronic lung disease and chronic heart disease: 12.5% of respondents with cardiovascular disease reported concomitant chronic pulmonary distress.

Those with chronic lung disease never reported an 'Excellent' health status. Such individuals were more likely to report 'Fair' and 'Poor' health status compared to those without COPD.



Cancer

Cancer is the second leading cause of death in the United States and places a significant financial burden on the healthcare system. Cancers cost the United States more than $189 billion in 2004, which includes $69 billion in direct medical costs and more than $120 billion in lost productivity (CDC, 2005f).

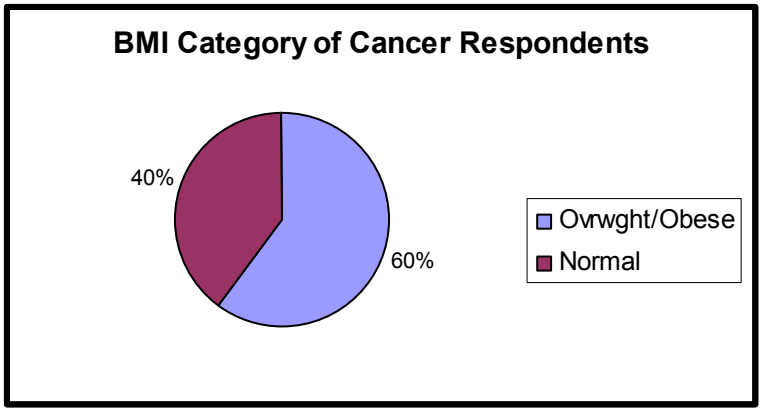
Breast cancer is the leading site of new cancers for women and prostate cancer is the leading site of new cancers for men (USDHHS, 2000). African Americans are 34% more likely to die of cancer than Caucasians and more than two times more likely to die of cancer than Asian or Pacific Islanders (USDHHS, 2000).

In Indiana, breast and prostate are the most prevalent cancers in women and men, respectively. Lung cancer is the most common cancer in both sexes and is the leading cause of cancer mortality in the state (ACS, 2003a).

In Tippecanoe County, survey respondents were asked if they had ever suffered from or been diagnosed with cancer of any kind. Among both younger and older adults a total of 54 (7.3%) respondents indicated that they had been diagnosed with cancer. Different types of cancer were not distinguished. Prostate and breast cancer are covered in the sections on men and women's health.

It is estimated that 30% of adults are either overweight or obese, leading to a variety of adverse health outcomes, such as heart disease, high blood pressure, diabetes, arthritis, and even some cancers. (CDC, 2005h).

- Of those with cancer, 60% are either overweight or obese.
- Cancer is more prevalent in the older population (those 50+ years of age).
- In the 25-50 population, 6% responded they have been diagnosed with cancer compared to 9.1% for those 50+ years of age.

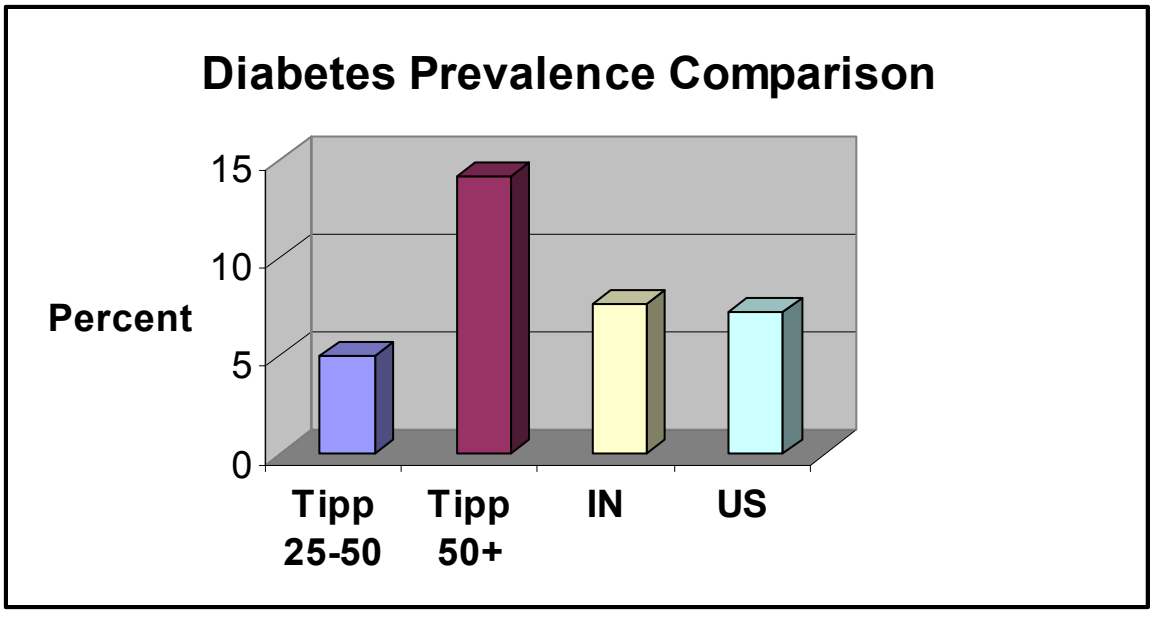


Diabetes

The CDC reported that "1 in 3 Americans born in 2000 will develop diabetes sometime during their lifetime" (CDC, 2005e). The number of people with diabetes in the United States has more than doubled between 1980 and 2002, from 5.8 million to 13.3 million (CDC, 2005e). Type 2 diabetes, which is linked to obesity and physical inactivity, accounts for 90-95% of diabetes cases and most often occurs in people older than 40 years of age (CDC, 2005e). African American, Hispanic, American Indian, and Alaska Native adults are 2-3 times more likely than Caucasian adults to have diabetes (CDC, 2005e).

Nationwide, it is estimated that 20 million (or 7.2% of the population) individuals suffer from diabetes. This figure includes the estimated one-third of the population that has not yet been diagnosed. In Indiana, a 2004 BRFSS study revealed that 7.7% of respondents had been told by a doctor that they had diabetes (CDC, 2004a).

- The prevalence of diabetes in the adult population for Tippecanoe County residents is 8.8%.
- The prevalence of diabetes for adults 25-50 years of age was 5% and 14.2% for those 50+ years of age.



Diabetes

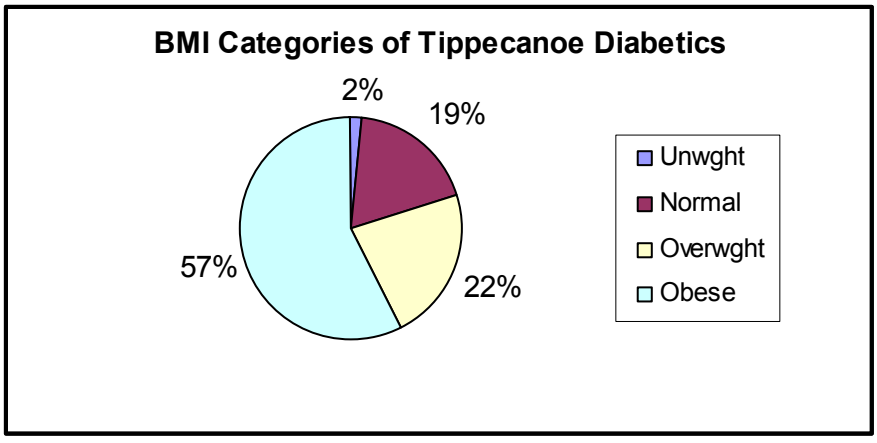
In 2002 the estimated cost of diabetes was $132 billion. Direct medical expenditures totaled $92 billion and indirect costs from lost workdays, restricted activity days, mortality, and permanent disability was $40.8 billion. Diabetes alone represents 11% of the U.S. healthcare expenditure. Individuals with diabetes have medical expenditures 2.4 times higher than they would if they did not have the disease. (American Diabetes Association, 2005)

While mortality rates do not directly link to diabetes, cardiovascular disease is the most costly complication of diabetes. Cardiovascular disease is the most common cause of death both in the United States and Indiana.

The increasing epidemic of overweight and obesity among the population is directly related to the prevalence of diabetes. Indiana is among the top 10 states in percentage of those overweight/obese. It follows that Tippecanoe County is also in this category.

In Tippecanoe County:

- In the 50+ years of age population, men and women were equally affected by diabetes. Additionally, 77.3% of the diabetics had high blood pressure.
- For adults 25-50 years of age, 72.3% of those with diabetes were women. (This could be due to women experiencing gestational diabetes). High cholesterol and high blood pressure were not found to be predictors of diabetes.



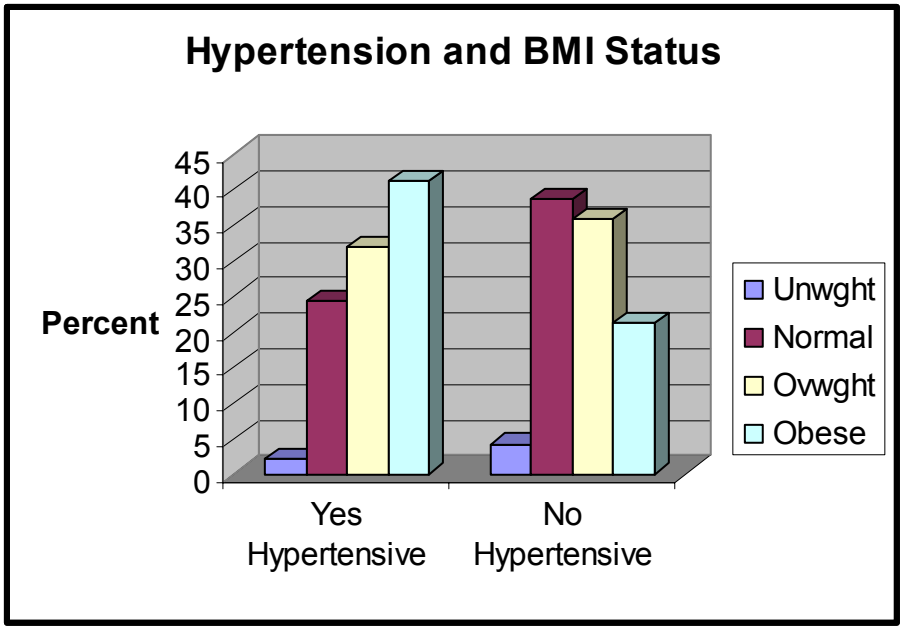
- A significant association was observed between BMI category and diabetic history.
- The majority of diabetics (79%) are at an unhealthy weight.

Hypertension

High blood pressure (hypertension) is a major risk factor for coronary heart disease (CHD), stroke, and heart failure. According to the CDC, during 1999-2000, nearly 30% of U.S. adults had high blood pressure and another 31% had pre-hypertension (CDC, 2005c). In general, the heart disease death rate has been consistently higher in males than in females and higher in the African American population than in the Caucasian population (USDHHS, 2000).

In the Tippecanoe County study, 194 (26.1%) of respondents indicated that they had been told by a doctor or nurse that they have hypertension or high blood pressure (see figure below). This is less than the 30% prevalence rate in the United States as a whole (CDC, 2005c) and comparable to the Indiana prevalence of 27% (MMWR, 2005).

- The prevalence of hypertension was much higher among those 50+ years of age (43.4%) compared to those 25-50 age group (13.8%).
- A significant association was observed between this chronic condition and BMI category.
- 73% of those that have hypertension are either overweight or obese.



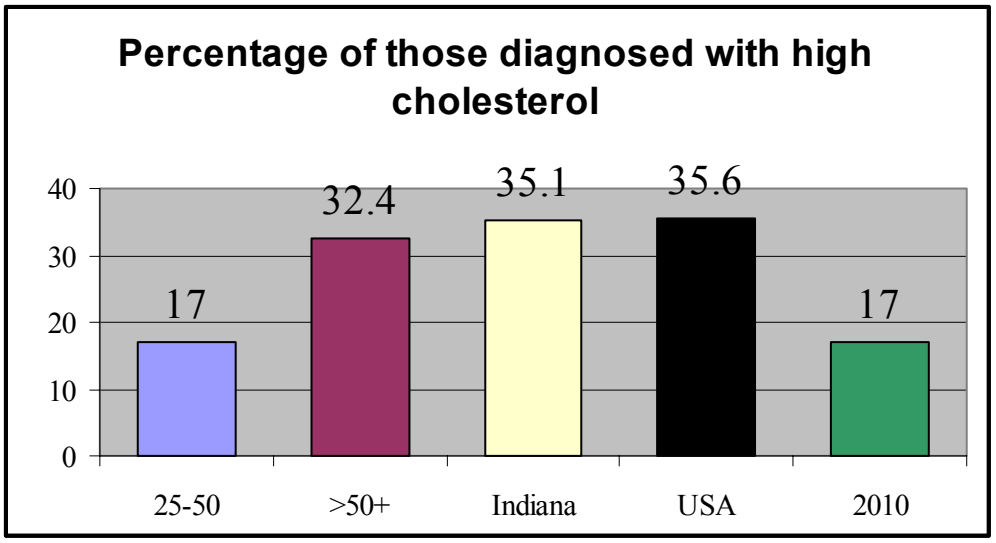
Cholesterol

High blood cholesterol is a major risk factor for coronary heart disease (CHD) and is attributed to high-fat diets, physical inactivity, and excess body weight. More than 50 million U.S. adults have cholesterol levels that require medical attention and treatment (USDHSS, 2000). It has been shown that as Body Mass Index (BMI) levels rise, the average total cholesterol levels increase, and average high-density lipoprotein (HDL), also known as "good cholesterol," levels decrease (USDHSS, 2000).

A 2003 BRFSS study in Indiana revealed that 35.1% of respondents had been told by a doctor or other health professional that they had high blood cholesterol (MMWR, 2005). In adults, total cholesterol levels of 240mg/dL or higher are considered high risk. Levels from 200-239 mg/dL are considered borderline-high risk. The target goal for HP2010 is to reduce the percentage of adults with high cholesterol levels to 17%.

The Tippecanoe County survey indicated that 173 (23.4%) respondents (n=740) had been told by a doctor that they had high cholesterol. Cholesterol level is a cumulative indicator, meaning that it increases with age. It is expected that many adults have undiagnosed high cholesterol.

- For adults 25-50 years of age, the prevalence of those diagnosed with high cholesterol is 17%. One in 5 men and 1 in 7 women have high cholesterol.
- In the 50+ age group the prevalence of those with diagnosed high cholesterol is much higher at 32.4%. Men and women had the same prevalence rate.

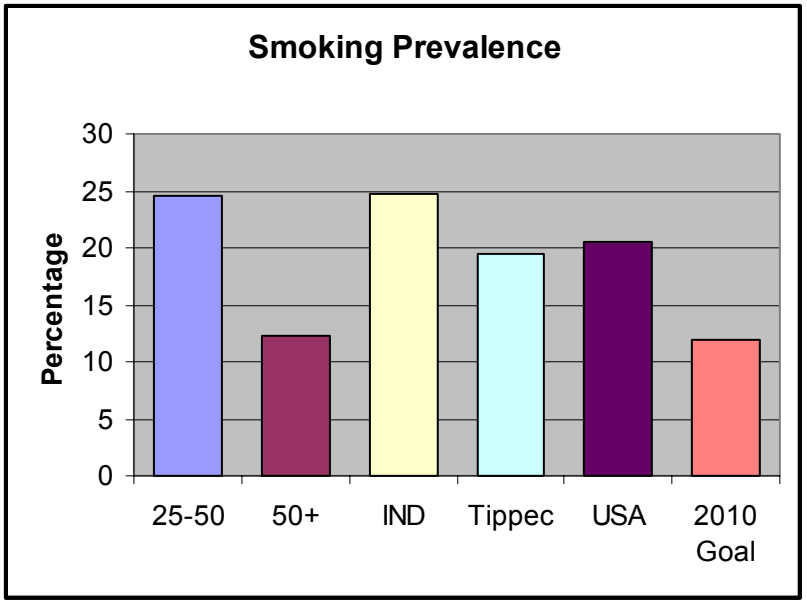


Smoking

Tobacco use is the leading cause of preventable death for Americans, yet 45.8 million adults continue to smoke, annually resulting in 440,000 deaths and 8.6 million illnesses and costing $75 billion in medical treatment and $80 billion in lost productivity annually (CDC, 2005i). Tobacco use is linked with several adverse health outcomes including lung cancer, coronary heart disease, chronic lung disease, stroke, and other cancers (CDC, 2005i). Exposure to second-hand tobacco smoke is also harmful, annually resulting in 3,000 non-smoker deaths from lung cancer, 35,000 deaths from heart disease, and 150,000-300,000 cases of lower respiratory tract infections in children less than 18 months of age (CDC, 2005i).

Tippecanoe County residents 25-50 years of age were asked about their current smoking status. The number of individuals reporting 'lifetime nonsmoker', 'former smoker', and 'current smoker' are shown in the table to the right.

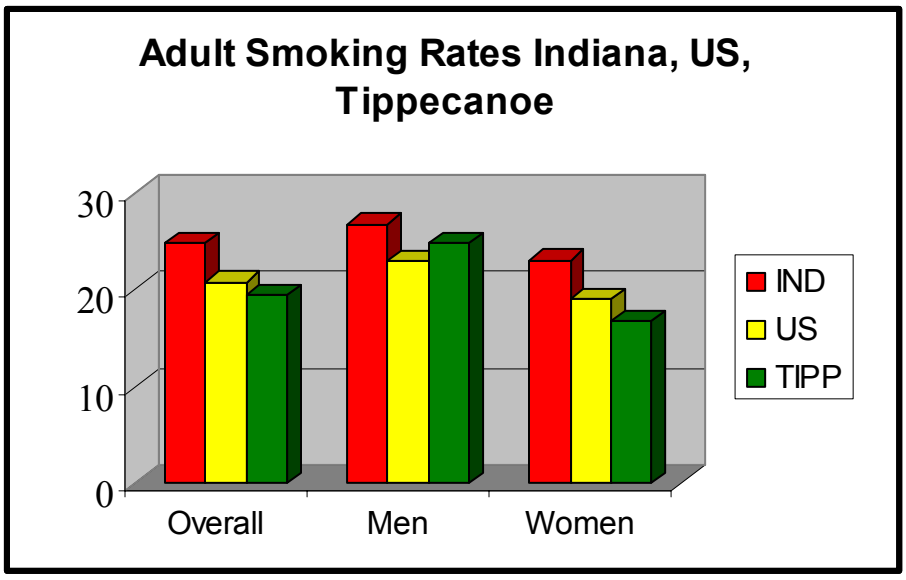
Smoking Status	Number	Percent
Lifetime Nonsmoker	271	62
Former Smoker	58	13.3
Current Smoker	**107**	**24.5**
TOTAL	436	100.0



Tippecanoe County residents 50+ years of age had a much lower prevalence rate of smoking, 12.3%, which was half of the prevalence of the younger group, 24.5%. Smoking was the highest among those in their 30s.

Smoking

Tobacco use is the single most preventable cause of death and disease in the United States. Cigarette smoking causes more deaths annually in the U.S. than alcohol, AIDS, car accidents, illegal drugs, murders, and suicides combined. The impact of tobacco on Indiana is staggering, claiming 9,700 Hoosier lives each year.



One of the reasons for high healthcare expenses in Indiana is a higher than average rate of smoking. In Tippecanoe County the rate of smoking for all adults (19.4%) is better than the state average (24.9%) and much closer to the national average (20.8%). However men smoke at a much higher rate than women, especially in Tippecanoe County, 24.8% and 16.7%, respectively.

Indiana Tobacco Prevention and Cessation estimate:

- Medical costs related to smoking in Indiana: $1.9 billion annually
- Medicaid expenditures directly related to tobacco in Indiana: $448 million
- For every pack of cigarettes sold in Indiana, Hoosiers spend $5.73 in health care costs related to smoking

Nutritional Status

Younger adults were surveyed about fruit and vegetable consumption and frequency of eating out. Older adults were only asked about their eating out frequency.

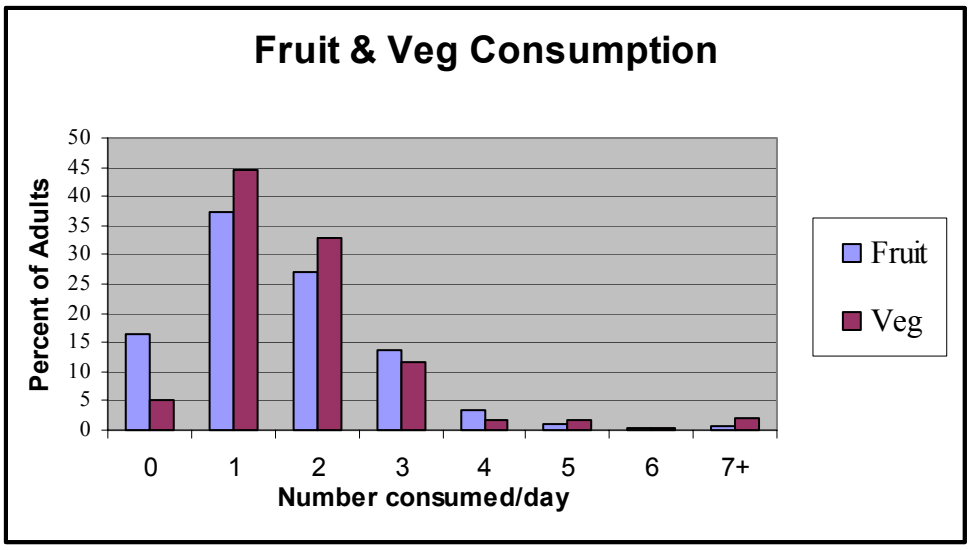
- 40% (2 in 5) of younger adults eat out several times per week
- 32% (1 in 3) of older adults eat out several times per week

The current United States Department of Agriculture (USDA) food pyramid recommends at least 5 serving of fruits and vegetables daily. The recommendations for food and nutrient intake are not intended to be met every day, but rather on average over a span of time (USDHSS, 2000).

A BRFSS study was conducted in Indiana in 2002 in which respondents were asked what their average frequency of fruit and vegetable consumption was per day (CDC, 2004a). The study revealed that 21.7% of respondents met or exceeded the recommended daily intake (CDC, 2004a). The highest percentage (39%) ate fruits and vegetables 1 or 2 times a day, and the next highest percent (33.3) ate 3 or 4 fruit and vegetable servings per day (CDC, 2004a).

In Tippecanoe County, survey participants were asked how many fruit and vegetable servings they consume per day, on average.

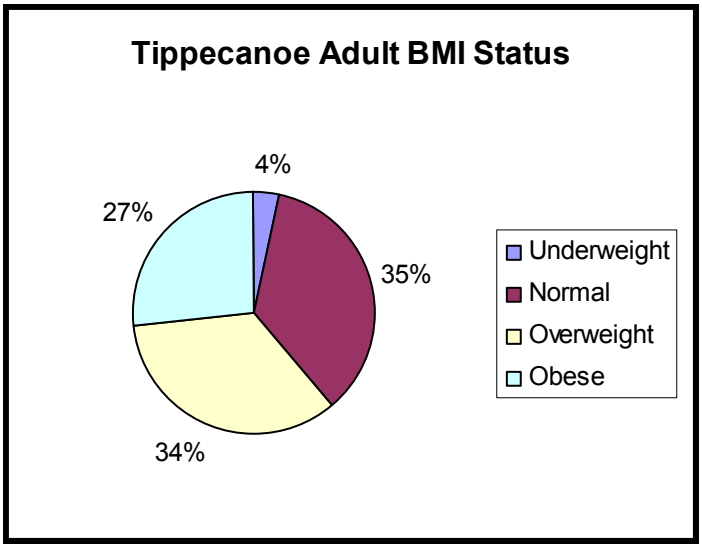
- 64.3% consume 1-2 fruits per day
- 77.4% consume 1-2 vegetables per day
- 16.6% eat no fruits on a given day
- 6.7% eat no vegetables on a given day



Adult Body Mass Index

Richard H. Carmona, U.S. Surgeon General stated, "As a society, we can no longer afford to make poor health choices such as being physically inactive and eating an unhealthy diet; these choices have led to a tremendous obesity epidemic…" (CDC, 2005h). It is currently estimated that 30% of adults and 16% of children and adolescents aged 6-19 years old are overweight or obese, leading to variety of adverse health outcomes including heart disease, high blood pressure, diabetes, arthritis-related diseases, and even some cancers and costing the U.S. an estimated $117 billion each year (CDC, 2005h).

Body Mass Index (BMI) is one of many indicators used as a benchmark for a healthy weight. BMI provides a measure of body composition using an individual's height and weight. Used as a guideline, it can be helpful to individuals to know their risk of developing the many diseases associated with obesity. Even a small weight loss of 10% will lower a person's risk of chronic disease greatly. A BMI below 18.5 is considered underweight; 18.5-24.9, normal; 25.0-29.9, overweight; and 30.0 and above, obese.



Over half of respondents (61%) weigh substantially more than what is considered normal for their height. Indiana consistently ranks in the top 10 states for obesity.

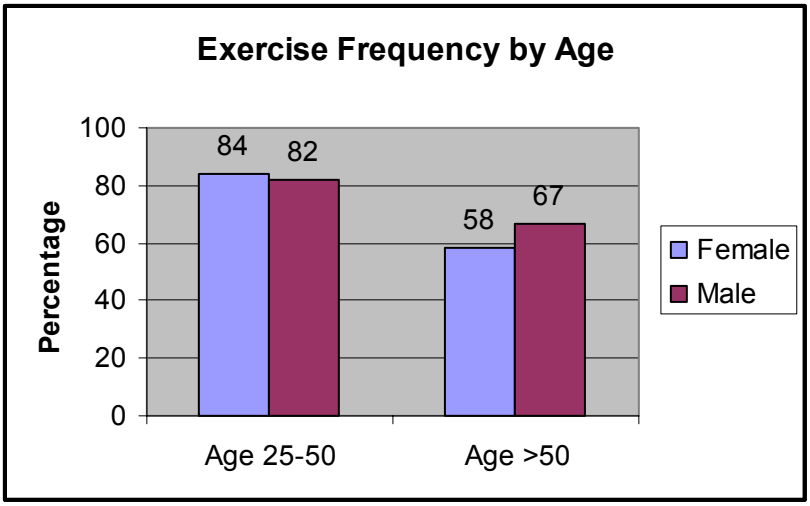
Indiana, with 25.2% of its residents suffering from obesity, is ranked 9th in the nation for obesity. Tippecanoe County residents contribute to this issue, with 27% of the population considered obese.

Exercise

Engaging in regular physical activity is one way to decrease the obesity epidemic; however, 50% of U.S. adults fall short of meeting the recommended physical activity guidelines and 26% are completely inactive during leisure time (CDC, 2005h). Research has found that physical activity decreases with age, and that less physical activity is reported with women versus men, and among individuals with lower socioeconomic status and education level (CDC, 2005h).

Tippecanoe County residents 25-50 and 50+ years of age were asked whether or not they had participated in some physical activity or cardiovascular exercise

- 84% of the 25-50 year old population responded 'Yes' to some exercise, whereas 61.5% of the 50+ year old population responded they exercise.
- Frequency of exercise is another important factor. Of the 25-50 year old group, 95.1% exercised at least once per week, compared to only 66% of the 50+ group.
- Gender was not a significant factor in regard to exercise patterns for those in the 25-50 year old age group. Eighty four percent of women and 82% of men in this age group reported exercise, compared to 58% women and 67% men in the 50+ age group.



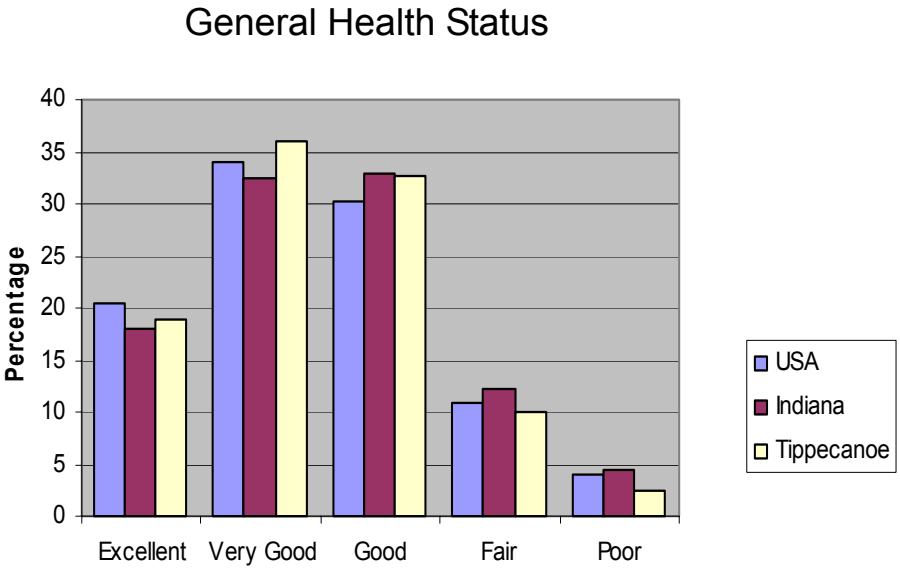
General Health Status

The health status of the United States is a reflection of the health of the total population. The perception of one's health can be used as a marker for the overall health status of the community. It is important to assess one's physical, mental, and emotional well-being to gauge overall health status. Residents were asked to rate their overall health status into one of five categories: Excellent, Very Good, Good, Fair, or Poor.

Below is a comparison of self-reported health status ratings for individuals in Tippecanoe County, Indiana, and the nation. The younger population perceived they had a much better health status than the 50+ years of age population.

Self-Reported Health Status	Tippecanoe County, Adults Age 25-50	Tippecanoe County Age > 50	Indiana 2005	USA 2005
Excellent	21.6%	15.2%	18.1%	20.4%
Very Good	40.6%	29.4%	32.4%	33.9%
Good	28.7%	38.5%	32.8%	30.2%
Fair	7.3%	13.6%	12.2%	10.8%
Poor	1.8%	3.2%	4.5%	4.0%

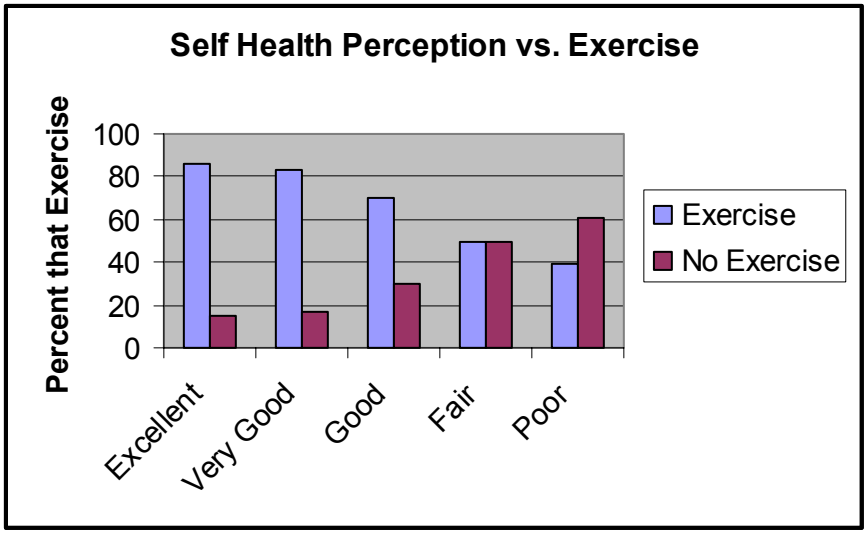
On average, Tippecanoe County residents rank their health status higher than all Indiana residents, with higher percentages at the 'Excellent' and 'Very Good' levels.



Barriers to Exercise & General Health Status

Individuals who engage in exercise report a much higher health status than those who do not exercise. The relationship between health status and physical activity is strongly correlated.

- Of those who rate their health as 'Excellent', 85.8% exercise and 14.8% do not exercise.
- Of those who rate their health as 'Very Good', 82.8% exercise and 17.2% do not exercise.
- Of those who rate their health as 'Good', 69.7% exercise and 30.3% do not exercise.



Barriers to exercise for adults 25-50 years of age include the following:

- 54% cited time as the major barrier to exercise.
- 24.6% cited lack of access to fitness facilities
- 8.7% cited lack of public parks or recreational areas
- 13% cited safety of neighborhood .

Mental Health

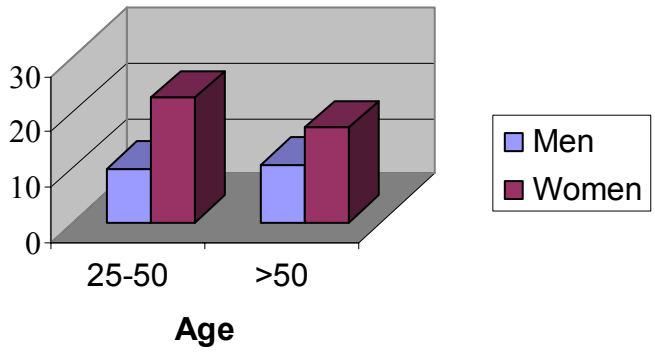
The National Institute of Mental Health estimate that 26.2% of Americans 18 years of age and older suffer from a diagnosable mental disorder in a given year. This translates to 57.7 million individuals of the U.S. population. Even though mental disorders are widespread in the population, the main burden of illness is concentrated in only approximately 6% of the population (one in 17). This is because nearly half of those with any mental disorder meet the criteria for two or more disorders.

Mental disorders are the leading cause of disability in the U.S. and Canada for individuals 15-44 years of age. The Global Burden of Disease study by WHO, Harvard, and the World Bank revealed that mental illness, including suicide, accounts for over 15% of the burden of disease in established market economies. This is more than the disease burden caused by all cancers.

Younger adults were asked if they had a history of mental illness and older adults were asked if a doctor had diagnosed them with an illness such as depression.

- 18% of younger adults had a history of mental illness
- 15.2% of older adults had a diagnosed condition of depression

Percentage of those with Mental Illness



In both age groups women experience mental illness at a much higher percentage than men.

Age Group	Men	Women
25-50	9.5%	22.4%
50+	10.3%	17%

As education and household income increase, mental illness in adults decreases; however, no relationship was observed in regard to race. A higher percentage of younger adults than older adults experience mental illness.

Men's Health

Two types of cancer screenings are of particular importance to men: testicular cancer for younger men and prostate cancer for men 50+ years of age. Testicular cancer develops in one or both testicles and typically involves a lump, swelling, or aching of the testicles (ACS, 2005f). Risk factors include age, occupation, presence of moles on the face, stomach, back, or neck, HIV infection, race/ethnicity, and body size (ACS, 2005g). Testicular cancer usually occurs in young men 15-40 years old; however males of any age, including infants, can develop the disease (ACS, 2005g).

It was estimated that 8,010 new cases of testicular cancer would develop in the United States in 2005, claiming approximately 390 lives (ACS, 2005h). Research has not determined whether performing a monthly self-examination reduces the death rate of testicular cancer; therefore, physicians often recommend this practice only for men with risk factors for developing the disease (ACS, 2005h).

Tippecanoe County male residents 25-50 years of age were asked whether or not they have ever been diagnosed and/or treated for testicular cancer, with 2 individuals responding 'Yes' and 146 responding 'No' (n=148). Male participants were then asked whether or not they or their healthcare provider routinely check for signs of testicular cancer.

- More than 50% of male respondents did not undergo routine testicular screening in the last year.
- Of the 139 males who responded to the question, 76 do not routinely check for signs of testicular cancer.

Men's Health

One in six American men will develop prostate cancer in the course of his lifetime. It is the most common non-skin cancer in America. In 2006, over 232,000 men will be diagnosed with prostate cancer, and over 30,000 men will die from it. A man is 33% more likely to develop prostate cancer than an American woman is to get breast cancer (Prostate Cancer Foundation 2006). These facts are particularly sobering because prostate cancer has a high survival rate, particularly if it is discovered early.

It is estimated that over 2 million American men are currently living with prostate cancer.. (Prostate Cancer Foundation 2006). Prostate cancer can be eliminated from the body by surgery or radiation, if diagnosed at an early stage. The chance of having prostate cancer increases rapidly after age 50. More than 70% of all prostate cancers are diagnosed in men over the age of 65 (Prostate Cancer Foundation 2006).

Tippecanoe County male residents 50+ years of age were asked if they had a Prostate Specific Antigen test (PSA) within the last three years . This test is recommended every 12 months for men over age 50. Of the 105 male respondents, 54 had a PSA test performed in the last three years, while the remainder did not have a PSA exam.

Only half of male respondents had the recommended annual PSA exam for prostate cancer in the last three years.

Women's Health

Breast cancer is a malignant tumor that develops in breast cells and most commonly occurs in females, although males can also develop the disease (ACS, 2005b). Next to skin cancer, breast cancer is the most common cancer afflicting women and is the second-leading cause of cancer deaths in women after lung cancer (ACS, 2005b).

It was projected that 211,240 women would develop breast cancer in 2005 and 40,410 would die (ACS, 2005c). While the cause of breast cancer remains unknown, researchers have identified many risk factors for developing the disease including: gender, age, family history, race, prior breast cancer and abnormal biopsy, birth control, not having children, alcohol, diet, exercise, breast feeding and pregnancy, and hormone replacement therapy (ACS, 2005d). The U.S. Preventive Services Task Force (USPSTF) recommends screening mammography every 1-2 years for women aged 40 and older.

Among women 40-50 years of age, the majority of respondents followed the recommended guidelines and had a mammogram every 1-2 years; however, 14.4% (n=68) of women in this age group have not had a mammogram in three or more years.

- Among women 40 and older, 86% had a mammogram within the last two years
- Women in their 50s were the most compliant, with 91% of receiving mammograms.
- Women in their 40s were less compliant, with 84% receiving mammograms.

Women's Health

It was estimated that 10,370 cases of cervical cancer would develop in 2005, with 3,710 resultant deaths (ACS, 2005a). During the years of 1955-1992, the number of deaths from cervical cancer was reduced by 74%, in part due to the Pap Smear test, which screens women for cervical cancer and leads to early detection and treatment (ACS, 2005a).

The U.S. Preventive Task Force (USPSTF) recommends that women have a Pap Smear Test about three years after they begin engaging in vaginal intercourse and no later than age 21; however, it is recommended to have the test performed every year until age 30. Between ages 30-70, it is recommended to have a Pap smear every 2-3 years if the last 3 pap smear tests were normal. After age 70, testing may discontinue unless abnormal results have occurred. Pap smears can also be discontinued for women who have had a complete hysterectomy.

Cervical cancer tends to affect women in mid-life, with half of the cases occurring in women 35-55 years old (ACS, 2005a). Risk factors include: human papillomavirus infection (HPV), smoking, HIV infection, chlamydia, diet, use of oral contraceptives, low socioeconomic status, multiple pregnancies, and family history (ACS, 2004b).

Females aged 50+ were asked if they had a Pap Smear in the last 3 years, with 24.5% (n=49) responding 'No'. This is troubling, since this population may be more at risk for cervical cancer.

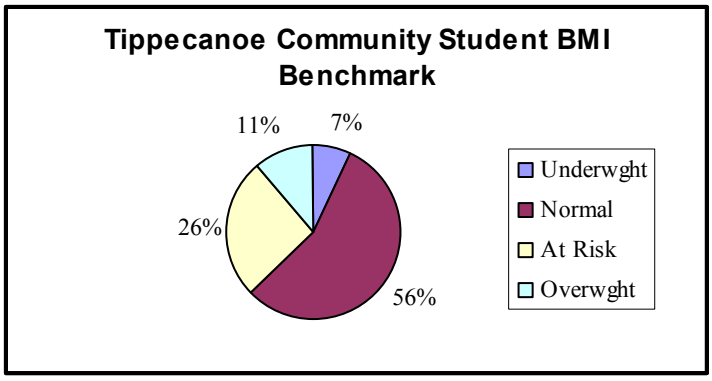
Tippecanoe County female residents 25-50 years of age were asked, "How long has it been since you last had a Pap Smear?" The results are shown in the table below.

Frequency of getting a Pap Smear	Frequency	Percent
Within the past year	217	76.4
Within the past two years	37	13.0
Within the past three years	5	1.8
Within the past five years	12	4.2
Five or more years ago	8	2.8
Never	5	1.8
Total	284	100.0

Children's Weight

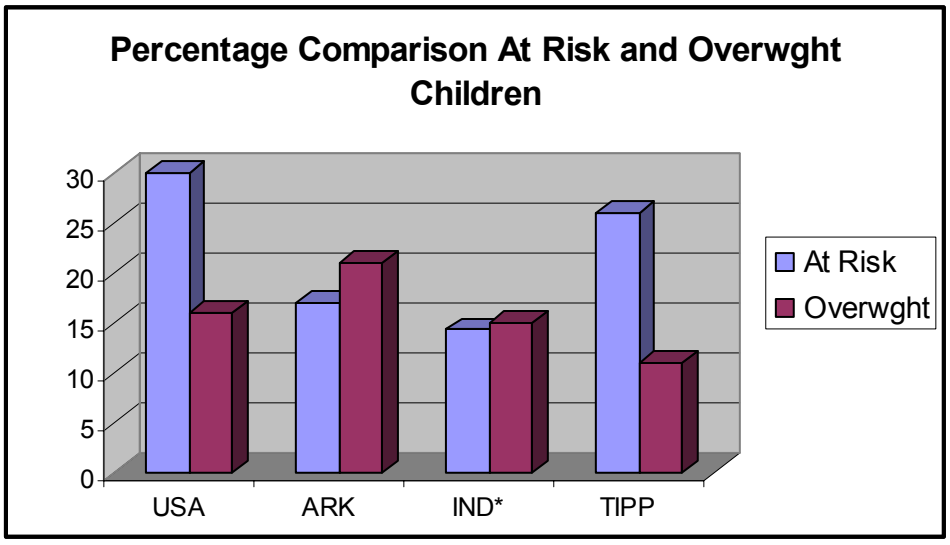
Childhood obesity involves significant risks to physical and emotional health. In 2000, it was estimated that 30% of boys and 40% of girls born in the U.S. are at risk for being diagnosed with Type 2 diabetes at some point in their lives.

According to the Institute of Medicine in 2004, over 9 million children over 6 years of age were overweight. As a community, Tippecanoe County children are no exception. A sampling of over 9,000 children were weighed 2004-2006. The sample contained all ages and grade levels. A more in depth formal report on specific schools is available at the Health Department.



Over 1 in 3 children in the community are at risk or overweight. With an estimate of 22,000 school age children in the county >8,000 children are already a part of the obesity epidemic.

Only the national statistics and the state of Arkansas has true weights as opposed to self reported data. An asterisk (*) is shown for Indiana, because the data is self reported. Over 1 in 4 children is at risk for being overweight, not far behind the nation at 30%. The nation shows 16% of children are overweight (obese in adult terms) with Tippecanoe County at 11%.

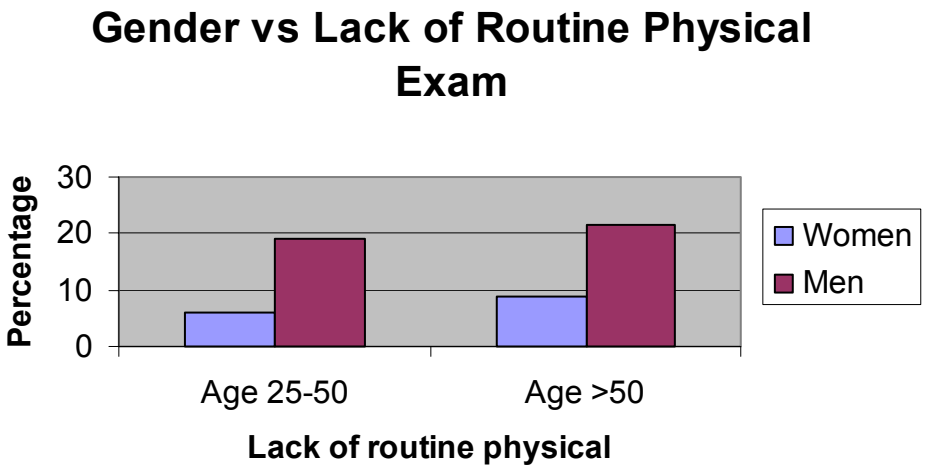


Health Care Access

Access to healthcare services considers geographic, physical, cultural, temporal, and economic factors and is linked closely with the costs, expenditures, and quality of care provided. Predisposing, need, and enabling factors affect one's potential access to health care services (Barton, 1999). Predisposing factors include an individual's age, gender, education, occupation, and race and ethnicity (Barton, 1999). Need factors include one's perceived health, interpretation of illness, and health status measures (Barton, 1999). Enabling factors include convenience, income, insurance coverage status, and characteristics of the health service system (Barton, 1999).

Younger adults (25-50) and older adults (50+) both accessed the medical community for routine physical examinations at a high percentage. However men are much less likely to have routine physical exams than women.

- 89.4% of younger adults have received a routine checkup in the last 2 years
- 86.4% of older adults have received a routine checkup in the last 3 years



In both groups of the adult population, education, medical coverage, income, and race did not appear to be a factor in accessing routine physicals. However, gender was a strong indicator, in that men are much less likely to access medical care for routine physicals.

Health Care Access

Younger adults (25-50) were surveyed on dental and eye examinations.

- 73% have seen a dentist in the last year
- 76.7% have seen an eye doctor in the last 2 years

Among Hispanics, the rate was lower for dental and eye exams.

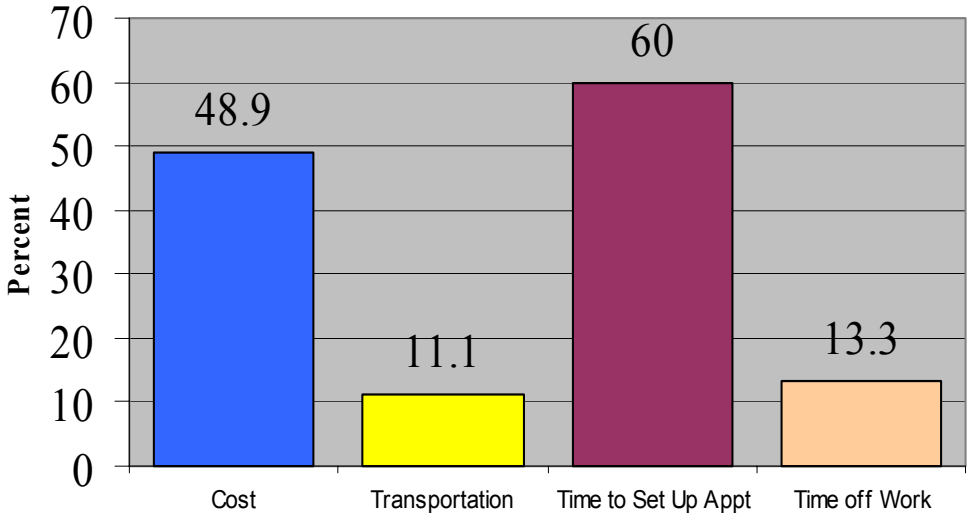
- 68.3% of Hispanics have seen a dentist in the last year
- 53.7% of Hispanics have seen an eye doctor in the last 2 years.

Women utilize health services more frequently than men.

- 75.5% of women have seen a dentist in the last year versus 68% men
- 80.5% of women have seen an eye doctor in the last 2 years versus 69.2% men

Individuals who stated they had difficulty getting to see a doctor during the past 12 months were asked a series of questions related to barriers, including cost, transportation, time to set up an appointment, and inability to take off time from work.

Barriers to Health Care Access
Age 25-50



Cost and time are the two major barriers that prevent people who need/want to see a doctor from doing so.

Of those who identified physician access issues, 60% indicated that the time it takes to set up an appointment is the greatest barrier to routine health care—an even greater hurdle than cost!

Health Insurance

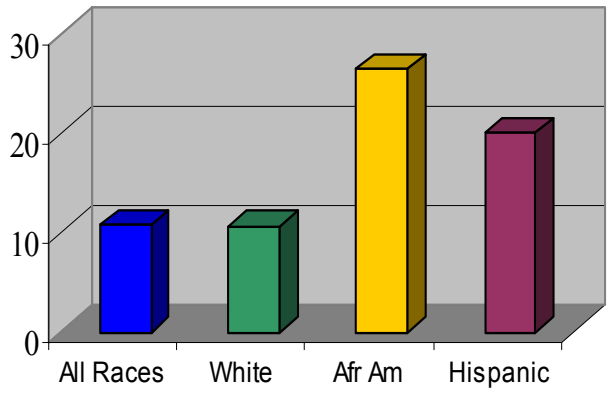
Unlike other major industrialized countries, the U.S. lacks a national healthcare coverage system. In 2004 it was estimated that 45 million Americans, or approximately 15.7% of the population, do not have health insurance. In Indiana, 13.9% (853,000 residents) are without health insurance, with children making up a substantial portion of that percentage. Respondents from both age groups were asked if they have health insurance.

In Tippecanoe County:

- 25-50 years of age — 13.1% reported no health coverage
- 50+ years of age — 7% reported no health coverage

The numbers differ from those at the national and state level because children are not in the sample. Also, older individuals qualify for Medicare.

Percentage with No Health Coverage by Race



The minority population does not have health insurance at twice the rate of the majority/ entire population.

African American	26.3%
Hispanic	20.0%

Nationwide, one in three (33%) Hispanics and one in five (20%) African Americans lack health insurance (20%).

The number of individuals without healthcare coverage is a concern for the community. Ultimately the entire community pays more for medical coverage when those who need care are not receiving basic medical services.

Conclusions & Discussion

The following summary highlights areas of concern for Tippecanoe County. Overall, the local residents rate their overall health status higher than the Indiana and national averages. Many resources available in the county may not be used to their potential. One of the goals of this public health database is to communicate the areas that need help so that non-profit agencies and healthcare providers are more aware of them. We hope that this report will establish a baseline for many chronic health indicators so we as a community can work toward better health for all residents.

Diabetes is one of the most serious chronic diseases among adults in Tippecanoe County. The prevalence is alarmingly high compared to the nation and even to the state. Using an overall prevalence of 8.8% and a population of 156,000 means that close to 14,000 Tippecanoe County residents have diagnosed diabetes. Another 4,000 have diabetes and are not yet diagnosed. Pre-diabetes is a condition that occurs when a person's blood glucose levels are higher than normal but not high enough for a diagnosis of Type 2 diabetes. Over 40 million (or 14%) of the American population have this condition (American Diabetes Association, 2005). In Tippecanoe County, a conservative estimate would be that 21,000 residents have pre-diabetes. A total of 39,000 residents are affected by this disease. Diabetes is a chronic disease that is an epidemic in Tippecanoe County, affecting one in four residents.

The prevalence of smoking among those 25 years of age and older is 19.4%, which is better than the state average of 24.9% and closer to the national average of 20.8%. Smoking cessation needs to be targeted at young men, since more men smoke than women (24.8% and 16.7%, respectively). Eighty percent of the Native Americans in the county survey reported 'Yes' to smoking. Younger adults smoke at a much higher rate than older adults, 24.5 and 12.3%, respectively.

The majority of adults are not meeting the basic requirements of 5 or more fruits or vegetables per day. While eating out is part of the problem, the lack of proper nutrients and eating a balanced diet are two critical factors in the obesity epidemic.

Over half of respondents (61%) weigh more than what is considered normal for their height. Indiana has been cited consistently in the top 10 for obese adults.

- 34% of Tippecanoe County adults are considered overweight
- 27% of Tippecanoe County adults are considered obese

Regular exercise is one way to prevent overweight and obesity. In Tippecanoe County the adults surveyed participate at a higher level of exercise than the average person in Indiana or the in nation. In general, as people age, they exercise less, and women exercise less than their male peers; therefore, exercise programs targeted at older adults should focus on women.

Conclusions & Discussion

A significant percentage of adults have experienced mental illness in Tippecanoe County, with women being affected more so than men.

- 18% of younger adults have had a history of mental illness
- 15.2% of older adults have had a diagnosed condition of depression

Over half of the males had not been screened for testicular or prostate cancer (where age appropriate). Our health professionals need to be aware of this for appropriate screening.

The Body Mass Index of children in Tippecanoe County is similar to the national average. At risk and overweight are equivalent categories for children as overweight and obese are for adults.

- Nationwide, 30% of children are at risk and 16% are overweight.
- In Tippecanoe County, 25% are at risk and 10% are overweight

This is an area of high importance for the community, schools, health care providers, and parents. Major changes must be made in children's exercise and diet if the country's obesity epidemic in order to reverse the obesity epidemic in the country.

Men tend to use routine health services, such as physical exams, less frequently than women. While cost is a likely barrier to accessing healthcare, the greatest barrier cited was the time required to schedule an appointment.

Race was the strongest predicator of healthcare coverage in Tippecanoe County.

- Among Hispanics and African Americans one in four do not have health insurance, which is comparable to national figures.

Limitations

This health assessment involved the combination of two surveys that were conducted by the same computerized laboratory at Purdue University, but for different purposes. Collecting data and analyzing it into a useable organized format for a health assessment is an expensive and time-consuming project. In the interest of establishing a baseline quickly and for cost-effectiveness, these two surveys were chosen because they represent the younger and older adult populations in the county. The surveys attempted to focus on permanent residents of the county; in other words, Purdue University students were not actively sought.

The surveys were conducted two years apart and the questions were not the same. In the younger population (25-50 years of age), the purpose was to find information related to chronic illness as well as general health information. In the older adult population (50+ years of age), the purpose was to determine the physical activity level and barriers to exercise. The two surveys shared a number of common validated questions. These questions are often asked in the standard Behavior Risk Factor Surveillance System nationwide.

These results were all obtained by a phone survey. Residents who were not home between the hours of 9 a.m.-9 p.m. and who do not have a landline phone were not contacted. Future studies for this public health database will contain sources of information from local health care providers and hospitals. Other areas of the population need to be contacted through the mail and possibly focus groups.

Data collection is often imperfect, and some data applying only to certain populations. Different sources of data require different case definitions for chronic diseases. Nonetheless, these data help us paint a picture of our local population.

The survey size was significant at 745, but is slightly less than 1% of the adult population (25 year of age and older) in Tippecanoe County. Individuals who choose to participate in a phone survey are inherently different from those who refuse to participate. Recall bias must also be considered, since individuals were asked to recall tendencies in their diet and exercise patterns, as well as their access to health care services. Social desirability may have also compromised the data, as individuals may have felt compelled to report their health status and related behaviors in a more positive manner than they truly are in order to reflect what is deemed socially acceptable.

The male to female ratio is approximately equal, but because women tend to be home more often than men in this survey, females were over-represented in the sample size.

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APPENDIX

Methodology

Survey Development

- The 2002 Community Health Assessment and Health Profiles report issued by the Bexar County Community Health Collaborative in Texas served as the template for the current study's survey development. Additional questions that were previously validated for the Behavioral Risk Factor Surveillance System (BRFSS), the National Health and Nutrition Examination Survey (NHANES), and National Health Interview Survey were also incorporated.
- The questions for younger adults (25-50 years of age) were focused on chronic disease indicators and accounted for the majority of the survey's content. The survey was designed to take 10-15 minutes to complete.
- The questions for the older adults (50+ years of age) were focused on physical activity and health–related variables. Questions from the Brownson Inventory were used. Survey items were adapted for use by older adults in a mid-western living environment. The survey was designed to take 30-40 minutes long to complete.

IRB Approval

- Pauline Shen, as the principal investigator (PI) and preceptor for this project, underwent training for IRB approval.

Data Collection

- Data for this report were gathered via a random digit dial (RDD) telephone survey conducted from the Purdue University Social Research Institute CATI lab, which uses Sawtooth WinCati software for its automated calling operation.
- Prior to data collection, the sample was screened for business lines and disconnected numbers.
- A goal of 400 completed surveys was set to allow for a representative sample of the population for younger adults. A goal of 300 completed surveys was set for the older adults.
- As a research organization, SRI is exempt from the Indiana 'Do Not Call List'.
- Interviewers used in the telephone calling operation were graduate students from the Masters in Public Health program at IUPUI or graduate students trained in survey research methods.
- Spanish speaking interviewers were utilized as necessary for the target population.

Calling Operation

- Calls were placed using the automated dialing system and respondents were asked to participate in the survey. At this time, participants were screened for inclusion criteria.
- Those who met the age requirement proceeded with the survey. Those who were outside of the age range were asked if another member of their household met

Methodology

Calling Operation (cont.)
the age requirements. The survey was then either completed with the qualifying respondent or coded with respect to the disposition of the call.

- All participants were informed of the confidentiality of their responses.

Data Analysis

- Data analysis was completed with SPSS version 13.0. Descriptive statistics were used to examine the demographics of each sample survey population. The populations were further compared to each other. When survey questions were validated and alike, the survey samples were merged together.
- Only surveys completed by respondents who disclosed their age and were within the age range were considered valid.